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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/319,202	06/02/1999	OSAMU SHIRASAKI	20-4576P	2596
2292	7590	05/04/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			GOFF II, JOHN L	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/319,202	Applicant(s) SHIRASAKI ET AL.	
	Examiner John L. Goff	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment received on 3/4/04. The previous claim objections have been overcome. In view of applicants arguments the optional reference to Wimmer et al. (EP 663025) in the rejections is withdrawn.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nitto (JP 1257031).

Nitto discloses that it is known to melt/fusion bond two fluoropolymer (e.g. PTFE, PFA, FEP, EPE COPOLYMER etc. and compare with applicants specification at Page 4, line 21 thru Page 5, line 10) parts/substrates together via a process wherein a heat shrinkable outer tubular part is placed over/around a second (less shrinkable i.e. different shrinkages) inner tubular part,

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bonding being effected by a combination of the heat shrinking force applied by the outer part and the hot melt characteristics of both parts. (English Translation Abstract and, in the translation provided: Fig. 1 and Page 4, lines 1-25 and Example 1). It is noted Nitto is silent as to an express teaching of the coefficient of thermal shrinkage of the tubular parts as defined by applicant (at Page 7, lines 26-28). Nitto does teach the tubular parts generally have shrinkage rates in the range of 100-400%. However, the shrinkage rates taught by Nitto and the coefficient of thermal shrinkage taught by applicant are not a measure of the same parameter. Furthermore, the fluoropolymer materials employed in Nitto are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through Page 5, lines 1-10) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the coefficient of thermal shrinkage for the tubular bodies and their difference as a function of the bond strength produced as those skilled in the art readily appreciate the direct relationship between coefficient of thermal shrinkage and bonding pressure as it relates to bonding two shrinkable objects.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nitto as applied in paragraph 4 above, and further in view of Clabburn (GB 1250503).

Nitto as applied above teaches all of the limitations in claim 5 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Nitto by using a well known and conventional process such as molding the tubular

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parts under deformation pressure as shown for example by Clabburn as only the expected results would be achieved.

Clabburn discloses a method for forming modified PTFE tubular parts wherein the method comprises subjecting the tubular parts to a deforming force, i.e. the application of pressure by an expanding mandrel. Clabburn shows tubular parts having different shrinking ratios are formed by using different amounts of deforming force, i.e. pressure (Page 1, lines 14-24 and Page 2, lines 59-78 and 119-123 and Examples 1 and 2).

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washizu (U.S. Patent 4,800,109).

Washizu discloses that it is known to melt/fusion bond two fluoropolymer (e.g. PTFE, PFA, FEP, etc. and compare with applicants specification at Page 4, line 21 thru Page 5, line 10) parts/substrates together via a process wherein a heat shrinkable outer tubular part is placed over/around a second (less shrinkable i.e. different shrinkages) inner tubular part, bonding being effected by a combination of the heat shrinking force applied by the outer part and the hot melt characteristics of both parts. (Figure 1 and Column 1, lines 44-51 and 65-68 and Column 2, lines 1-20, 29-34, and 55-56). It is noted Washizu is silent as to an express teaching of the coefficient of thermal shrinkage of the tubular parts as defined by applicant (at Page 7, lines 26-28).

Washizu does teach the tubular parts have shrinkage ratios in the range of 1.3:1 to 4:1, i.e. 30-400%. However, the shrinkage ratios taught by Washizu and the coefficient of thermal shrinkage taught by applicant are not a measure of the same parameter. Furthermore, the fluoropolymer materials employed in Washizu are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through

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Page 5, lines 1-10) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the coefficient of thermal shrinkage for the tubular bodies and their difference as a function of the bond strength produced as those skilled in the art readily appreciate the direct relationship between coefficient of thermal shrinkage and bonding pressure as it relates to bonding two shrinkable objects.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Washizu as applied in paragraph 6 above, and further in view of Clabburn (GB 1250503).

Washizu as applied above teaches all of the limitations in claim 5 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Washizu by using a well known and conventional process such as molding the tubular parts under deformation pressure as shown for example by Clabburn (Clabburn is described in full detail above in paragraph 5) wherein only the expected results would be achieved.

Response to Arguments

8. Applicant's arguments filed 3/31/03 have been fully considered but they are not persuasive. It is noted that in view of applicants arguments the optional reference to Wimmer et al. (EP 663025) in the rejections is withdrawn and thus, the arguments to Wimmer et al. are moot.

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Applicant argues, "As explained in previous correspondence in this application, the Nitto reference discloses the bonding of tubular bodies made of a fluorine-containing resin, and a **"fluorine-containing resin powder (5) having thermal fusing property"** is applied to the outer peripheral surface of the end portion of said small-diameter tubular bodies (1)". (Emphasis supplied.) See page 5, lines 10-12, of the translation provided by the USPTO. This means that the method of the Nitto reference requires the use of a fusing material - that is, a bonding aid - to bond the tubular bodies together. The Nitto reference provides no motivation to join two or more bodies made of modified PTFE together without using a material having thermal fusing property."

As stated in the previous Office Action, applicants' claims are not commensurate in scope with this argument. Applicants' claims do not exclude resin between the two tubular bodies. Furthermore, Nitto teaches, "Also, according to this invention, as shown in the figure, it is possible to apply fluorine-containing resin powder (5) on the outer peripheral surfaces of the end portion of medium-diameter tubular body (2). By means of this arrangement, it is possible to improve the bonding strength between medium-diameter tubular body (2) and large-diameter tubular body (3)" (Figure 3 and Page 5, lines 20-23 emphasis added). Thus, Nitto teaches it is possible (i.e. it is not expressly required) to use a fluorine-containing resin powder.

Applicant further argues, "Clabburn discloses a heat-recoverable (heat-shrinkable) product, which is formed by crosslinking a polymer article such as a tube, converting the crosslinked polymer article by expansion to a deformed state, and then cooling the polymer article in its deformed state to a temperature below its crystalline melting point to retain the deformed state. Page 2, lines 21-53. Therefore, as can be seen from Clabburn's Examples, the shrinkage ratio of such a heat-shrinkable product is very large, for example, 2:1 (200%), 7:1 (700%), 1.45:1 (45%), 1.52:1 (52%), etc. The present invention does not make use of heat-shrinkable materials having such large shrinkage ratios." and "Washizu discloses a flexible composite hose constructed such that a plastics inner tube is covered with an outer tube of heat shrinkable material. The heat shrinkable material of Washizu shrinks in the radial direction at a ratio of 1.3:1 to 4:1, that is, 30% to 400%. Such large shrinkage ratios can be achieved only with heat shrinkable materials, as discussed above in connection with Clabburn."

Applicant appears to be arguing that the fluoropolymer materials of the present invention do not have the shrinkage rate ranges taught by Nitto (100-400%), Washizu (30-400%), and

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Clabburn (45-200%). However, as noted above the fluoropolymer materials employed in Nitto, Washizu, and Clabburn are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through Page 5, lines 1-10) such that it appears the fluoropolymer materials would have the same range of shrinkage rates and determining the particular coefficient of thermal shrinkage for each tubular part is obvious for the reasons given above.

Applicant further argues, "Furthermore, when Washizu used PFA as an outer tube material in Example 3, the outer surface of the inner tube was coated with a polyamide adhesive."

As noted above, applicants claims are not commensurate in scope with this argument. Applicants claims do not exclude adhesive between the two tubular bodies. Furthermore, Washizu clearly shows embodiments wherein no adhesive is used (Figures 1 and 2 and Column 2, lines 42-56).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

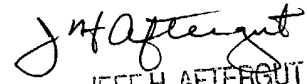
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff
April 29, 2004



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